

Version With Markings To Show Changes Made

IN THE SPECIFICATION

Please amend the specifications as follows:

Please amend the Descriptive Title of the Invention as follows:

[An Apparatus And]A Method For Depositing A Coating Onto A Surface Of A
Prosthesis

Please insert the following section before the “BACKGROUND OF THE INVENTION”
section beginning on page 1:

CROSS REFERENCE

This is a divisional application of U.S. Serial Number 10/043,500, which was filed on January 10, 2002, which is a divisional application of U.S. Patent No. 6,395,326, which was filed on May 31, 2000.

The paragraph beginning on page 1, line 17 has been amended as follows:

Percutaneous transluminal coronary angioplasty (PCTA) is a procedure for treating heart disease. A catheter assembly having a balloon portion is introduced percutaneously into the cardiovascular system of a patient via the brachial or femoral artery. The catheter assembly is advanced through the coronary vasculature until the balloon portion is positioned across the occlusive lesion. Once in position across the lesion, the balloon is inflated to a predetermined

size to radially compress against the atherosclerotic plaque of the lesion [against the inner wall of the artery to dilate the lumen] to remodel the vessel wall. The balloon is deflated to a smaller profile to allow the catheter to be withdrawn from the patient's vasculature.

The paragraph beginning on page 2, line 29 has been amended as follows:

The immersion method of coating a stent, also called dip-coating, entails submerging the entire stent, or an entire section of the stent, in a polymer solution. Similarly, spray-coating requires enveloping the entire stent, or an entire section of the stent, in a large cloud of polymeric material. One disadvantage of dip-coating and spray-coating methods is the inability to control the exact geometrical pattern of coating on the stent or section of the stent. Another shortcoming of both dip- and spray-coating is the possibility of forming web-like defects by building-up of excess polymeric material [within the radii of the stent] between the stent struts. Web-like defects are most prevalent in stents having tight patterns, for example coronary stents, such that the [radii] distance between the struts is [are] very small.

The paragraph beginning on page 3, line 20 has been amended as follows:

Sputtering and gas phase polymerization have similar shortcomings. Like the dip-coating and spray-coating techniques, the sputtering and gas phase polymerization techniques do not allow control of the geometrical pattern [in which the stent will be coated] of the coating and are quite limited in the selection of polymers that can be employed. In addition, coating a stent with a polymer and a drug at the same time via sputtering or gas phase polymerization has not been demonstrated to be effective and risks degradation of the drug. Moreover, techniques for

applying a polymeric coating by sputtering or gas phase polymerization and later incorporating a drug into the applied polymeric coating are limited.

Please delete the “SUMMARY OF THE INVENTION” section beginning on page 4, line 8 and insert the following section:

In accordance with one aspect of the invention, a method of manufacturing is disclosed including positioning a dispenser in close proximity to or in contact with a stent, the stent having a frame structure and spaces separating the frame structure; and moving the dispenser along a pattern of the frame structure while maintaining the dispenser in close proximity to or in contact with the frame structure. In one embodiment, the method additional includes applying a substance from the dispenser to the frame structure. In another embodiment, the method also includes applying heat from the dispenser to the substance applied to the frame structure to solidify the substance on the frame structure. In yet another embodiment, the stent is maintained in a stationary position.

In accordance with another aspect of the invention, a method of manufacturing is disclosed including positioning a dispenser in close proximity to or in contact with a stent, the stent having a frame structure and spaces separating the frame structure; and moving the stent while maintaining the dispenser along a pattern of the frame structure and in close proximity to or in contact with the frame structure. In one embodiment, the method additional includes applying a substance from the dispenser to the frame structure. In another embodiment, the method also includes applying heat from the dispenser to the substance to solidify the substance on the frame structure. In yet another embodiment, the movement of the stent is controlled by a central processing unit and a feedback system to provide information about the pattern of the

frame structure or the positioning of the stent relative to the dispenser to the central processing unit.

The paragraph beginning on page 13, line 13 has been amended as follows:

As shown in Figure 2A, holder assembly 14 is used to support the above-described prosthesis 12 during deposition. A suitable holder assembly 14 allows access to the entire top surface, i.e., tissue-contacting surface, of prosthesis 12 while holding prosthesis 12 securely and without damaging prosthesis 12. In addition, [a suitable] holder assembly 14 [is] should be capable of being coupled to and controlled by holder motion control system 16 [, for example holder assembly 14 illustrated in Figure 2B].

The paragraph beginning on page 14, line 10 has been amended as follows:

Nozzle 26 may be permanently, removably or disposably affixed to reservoir 24 [, removably, or disposable]. Nozzle 26 may be of any suitable material including, but not limited to, glass, metal, sapphire, and plastics. Particular care should be taken to ensure that a glass nozzle 26 does not make contact with prosthesis 12 upon deposition of composition 10 to avoid nozzle 26 breakage. Particular care should also be taken to ensure that a plastic nozzle 26 is compatible with components of composition 10. Nozzle 26 may be of any suitable design including, but not limited to the designs of Figures 3B and 3C. Nozzle 26 depicted in Figure 3C may be particularly useful for applications in which lifting of a final droplet 38 of composition 10 is [un]desirable, as the depicted design of nozzle 26 allows the capture of final droplet 38 within orifice 28. In addition, dispenser assembly 22 may include more than one nozzle 26.

The paragraph beginning on page 32, line 12 has been amended as follows:

Briefly, an [angiography] angiogram is performed to determine the appropriate positioning for stent therapy. [Angiography] An angiogram is typically accomplished by injecting a radiopaque contrasting agent through a catheter inserted into an artery or vein as an x-ray is taken. A guidewire is advanced through the lesion or proposed site of treatment. Over the guidewire is passed a delivery catheter which allows a stent in a collapsed configuration to be inserted into the passageway. The delivery catheter is inserted either percutaneously or by surgery into the femoral artery, brachial artery, femoral vein, or brachial vein, and advanced into the appropriate blood vessel by steering the catheter through the vascular system under fluoroscopic guidance. A stent having the above described coating may be expanded at the desired area of treatment. A post insertion angiogram may also be utilized to confirm appropriate positioning.

IN THE CLAIMS

Claims 1-93 have been canceled without prejudice. New Claims 94-126 have been added.

Please cancel claims 1-93 and add the following new claims:

94. (New) A manufacturing method, comprising:

(a) positioning a dispenser in close proximity to or in contact with a stent, the stent having a frame structure and spaces separating the frame structure; and

(b) moving the dispenser along a pattern of the frame structure while maintaining the dispenser in close proximity to or in contact with the frame structure.

95. (New) The method of Claim 94, additionally including applying a substance from the dispenser to the frame structure.

96. (New) The method of Claim 95, additionally including applying heat from the dispenser to the substance applied to the frame structure to solidify the substance on the frame structure.

97. (New) The method of Claim 95, additionally including coordinating the flow rate of the substance out from the dispenser to prevent any significant overflow of the substance off of the frame structure.

98. (New) The method of Claim 95, wherein the substance comprises a polymer, a solvent, and optionally a therapeutic substance added thereto.

99. (New) The method of Claim 94, wherein the dispenser comprises an ink-jet printhead or a microinjection syringe.

100. (New) The method of Claim 94, wherein the dispenser comprises a heat source.

101. (New) The method of Claim 94, wherein the dispenser applies heat to the stent.
102. (New) The method of Claim 94, wherein the stent is maintained in a stationary position.
103. (New) The method of Claim 94, wherein the stent is capable of moving independently of the dispenser.
104. (New) The method of Claim 94, wherein the movement of the dispenser is controlled by a central processing unit.
105. (New) The method of Claim 94, wherein the movement of the dispenser is controlled by a central processing unit and a feedback system to provide information about the pattern of the frame structure or the positioning of the dispenser relative to the frame structure to the central processing unit.
106. (New) The method of Claim 94, wherein a portion of the pattern of the frame structure is non-linear.
107. (New) The method of Claim 94, wherein the dispenser is positioned at an angle of less than 90 degrees to the surface of the frame structure.
108. (New) The method of Claim 94, wherein the dispenser is capable of moving in intervals of less than 0.1 inches.
109. (New) The method of Claim 94, wherein the dispenser is capable of moving in intervals of less than 0.001 inches.
110. (New) A manufacturing method, comprising:
 - (a) positioning a dispenser in close proximity to or in contact with a stent, the stent having a frame structure and spaces separating the frame structure; and

(b) moving the stent while maintaining the dispenser along a pattern of the frame structure and in close proximity to or in contact with the frame structure.

111. (New) The method of Claim 110, additionally including applying a substance from the dispenser to the frame structure.

112. (New) The method of Claim 111, additionally including applying heat from the dispenser to the substance to solidify the substance on the frame structure.

113. (New) The method of Claim 111, additionally including coordinating the flow rate of the substance out from the dispenser so as to prevent any significant overflow of the substance off of the frame structure.

114. (New) The method of Claim 111, wherein the substance comprises a polymer, a solvent, and optionally a therapeutic substance added thereto.

115. (New) The method of Claim 110, wherein the dispenser comprises an ink-jet printhead or a microinjection syringe.

116. (New) The method of Claim 110, wherein the dispenser comprises a heat source.

117. (New) The method of Claim 110, wherein the dispenser applies heat to the stent.

118. (New) The method of Claim 110, wherein the dispenser is held in a stationary position.

119. (New) The method of Claim 110, wherein the dispenser is capable of rotating about the circumference of the stent.

120. (New) The method of Claim 110, wherein the dispenser is capable of moving independently of the stent.

121. (New) The method of Claim 110, wherein the movement of the stent is controlled by a central processing unit.

122. (New) The method of Claim 110, wherein the movement of the stent is controlled by a central processing unit and a feedback system to provide information about the pattern of the frame structure or the positioning of the stent relative to the dispenser to the central processing unit.

123. (New) The method of Claim 110, wherein a portion of the pattern of the frame structure is non-linear.

124. (New) The method of Claim 110, wherein the dispenser is positioned at an angle of less than 90 degrees to the surface of the frame structure.

125. (New) The method of Claim 110, wherein the stent is capable of being moved in intervals of less than 0.1 inches.

126. (New) The method of Claim 110, wherein the stent is capable of being moved in intervals of less than 0.001 inches.